IN THE CLAIMS:

Please cancel claims 1-13, substitute claims 14-17, and claims 18-19, and substitute the following claims therefor:

WE CLAIM AS OUR INVENTION:

20. A method for feature modification of a one-dimensional signal comprising the steps of:

converting a one-dimensional analog signal into a digital signal;

producing a discrete spectral transformation of said digital signal thereby obtaining a frequency domain signal;

convolving a frequency response function with a selected discrete window function having a significantly shorter length than said frequency response function, to obtain a convoluted frequency response function, and multiplying said frequency domain signal by said convoluted frequency response function to obtain a product;

subjecting said product to an inverse, discrete spectral transformation, thereby producing a plurality of signal segments; and

implementing a feature modification of said one-dimensional signal employing an adaptive overlap-add algorithm by overlapping and shifted addition of said plurality of signal segments to produce an output signal having said feature modification.

21. A method as claimed in claim 20 comprising employing a window function comprising only positive values and having a smooth curve in the frequency domain and having a pronounced structure in the time domain with a large, positive principle lobe and lower amplitude secondary maxima and minima.

22. A method as claimed in claim 21 comprising generating said window function by converting a window function in the time domain having a continuous curve into said window function in the frequency domain.

23. A method as claimed in claim 22 wherein conversion of said one-dimensional analog signal into said digital signal represents a beginning of processing of said one-dimensional analog signal and comprising calculating and storing said window function before said beginning of processing.

24. A method as claimed in claim 22 wherein the step of converting said one-dimensional analog signal into said digital signal comprises producing a plurality of digital signal blocks, and wherein the step of subjecting said digital signal to said adaptive overlap-add algorithm comprises individually processing said digital signal blocks with said adaptive overlap-add algorithm, and comprising re-calculating said window function for each individual processing of the respective digital signal blocks.

25. A method as claimed in claim 21 comprising generating said window function by converting a prolate spheroid window function in the time domain into said window function in the frequency domain.

26. A method as claimed in claim 21 comprising the additional step of subjecting said output signal to an error analysis and thereby obtaining error information, and comprising modifying said window function dependent on said error information.

27. A method as claimed in claim 20 comprising employing a discrete Fourier transformation as said spectral transformation and employing an inverse discrete Fourier transformation as said inverse spectral transformation.

28. A method as claimed in claim 27 comprising employing a fast Fourier transform for said discrete Fourier transformation and said inverse discrete transformation.

29. A method as claimed in claim 20 comprising employing a discrete Cosine transformation as said spectral transformation and employing an inverse discrete Cosine transformation as said inverse spectral transformation.

30. A method as claimed in claim 20 comprising employing a discrete Haar transformation as said spectral transformation and employing an inverse discrete Haar transformation as said inverse spectral transformation.

31. A method as claimed in claim 20 comprising employing a discrete Walsh-Hadamard transformation as said spectral transformation and employing an inverse discrete Walsh-Hadamard transformation as said inverse spectral transformation.

32. A method as claimed in claim 20 comprising employing a discrete Hartley transformation as said spectral transformation and employing an inverse discrete Hartley transformation as said inverse spectral transformation.

33. A device for feature modification of a one-dimensional signal, comprising:

an analog-to-digital converter supplied with a one-dimensional analog signal for converting said one-dimensional analog signal into a digital signal;

a spectral transformation unit supplied with said digital signal which performs a discrete, spectral transformation on said digital signal, thereby obtaining a frequency domain signal;

a first shift register containing a frequency response function and a second shift register containing a selected discrete window function having a significantly shorter length than said frequency response function, and a multiplier connected to said first shift register and to said second shift register for multiplying respective, successive values of said frequency response function with respective successive values of said window function to obtain a convoluted frequency response function;

a further multiplier for multiplying said frequency domain signal by said convoluted frequency response function, thereby obtaining a product;

an inverse spectral transformation unit supplied with said product for performing a discrete, inverse spectral transformation on said product, thereby obtaining a plurality of signal segments; and

an arrangement for implementing an adaptive overlap-add algorithm for feature modification of said one-dimensional signal by overlapping and shifted addition of said plurality of signal segments to produce an output signal having said feature modification.

34. A device for feature modification of a one-dimensional signal comprising:

a microprogram control unit operating according to a microprogram comprising a sequence of microprogram words for converting a one-dimensional analog signal into a digital signal, producing a discrete spectral transformation of said digital signal thereby obtaining a frequency domain signal, convolving a frequency response function with a selected discrete window function having a significantly shorter length than said frequency response function, to obtain a convoluted frequency response function, and multiplying said frequency domain signal by said convoluted frequency response function to obtain a product, subjecting said product to an inverse, discrete spectral transformation, thereby producing a plurality of signal segments, and implementing a feature modification of said one-dimensional signal employing an adaptive overlap-add algorithm by overlapping and shifted addition of said plurality of signal segments to produce an output signal having said feature modification.

35. A device for feature modification of a one-dimensional signal, comprising:

a signal processor operating according to a sequence of assembler commands for converting a one-dimensional analog signal into a digital signal, producing a discrete spectral transformation of said digital signal thereby obtaining a frequency domain signal, convolving a frequency response function with a selected discrete window function having a significantly shorter length than said frequency response function, to obtain a convoluted frequency response function, and multiplying said frequency